

H. W. LIGON.
COTTON GINNING MACHINE.
APPLICATION FILED JULY 15, 1909.

952,825.

Patented Mar. 22, 1910.

2 SHEETS—SHEET 1.

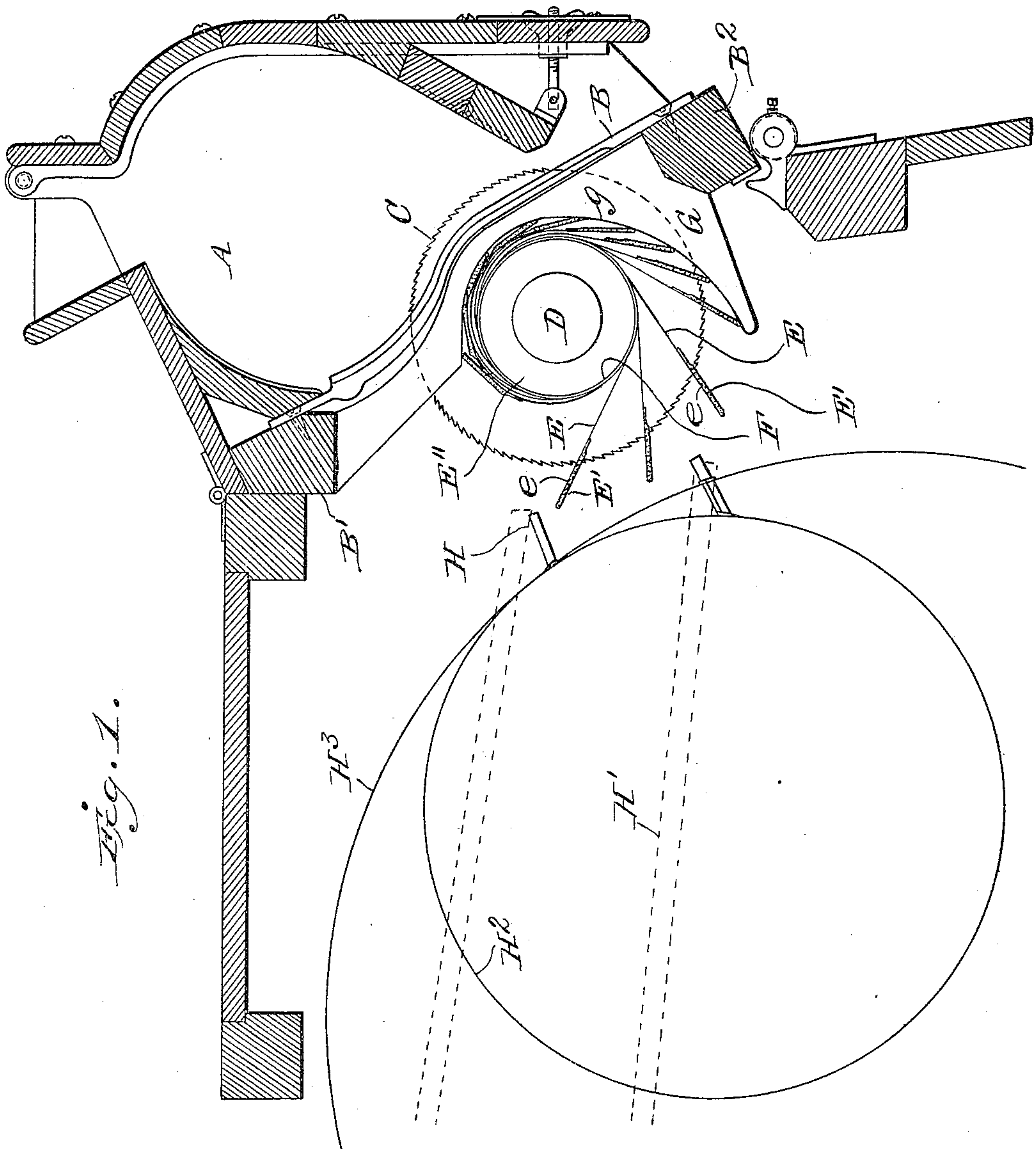


Fig. 1.

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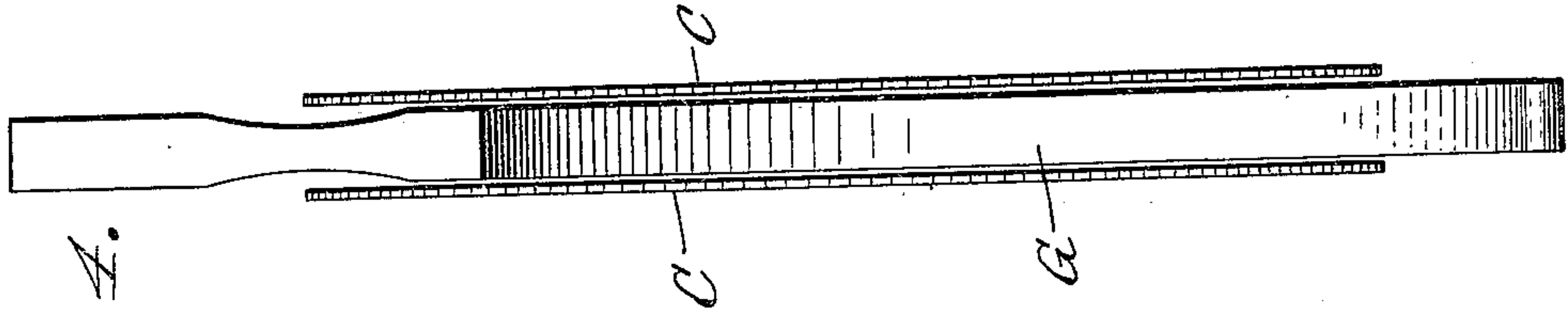


Fig. 4.

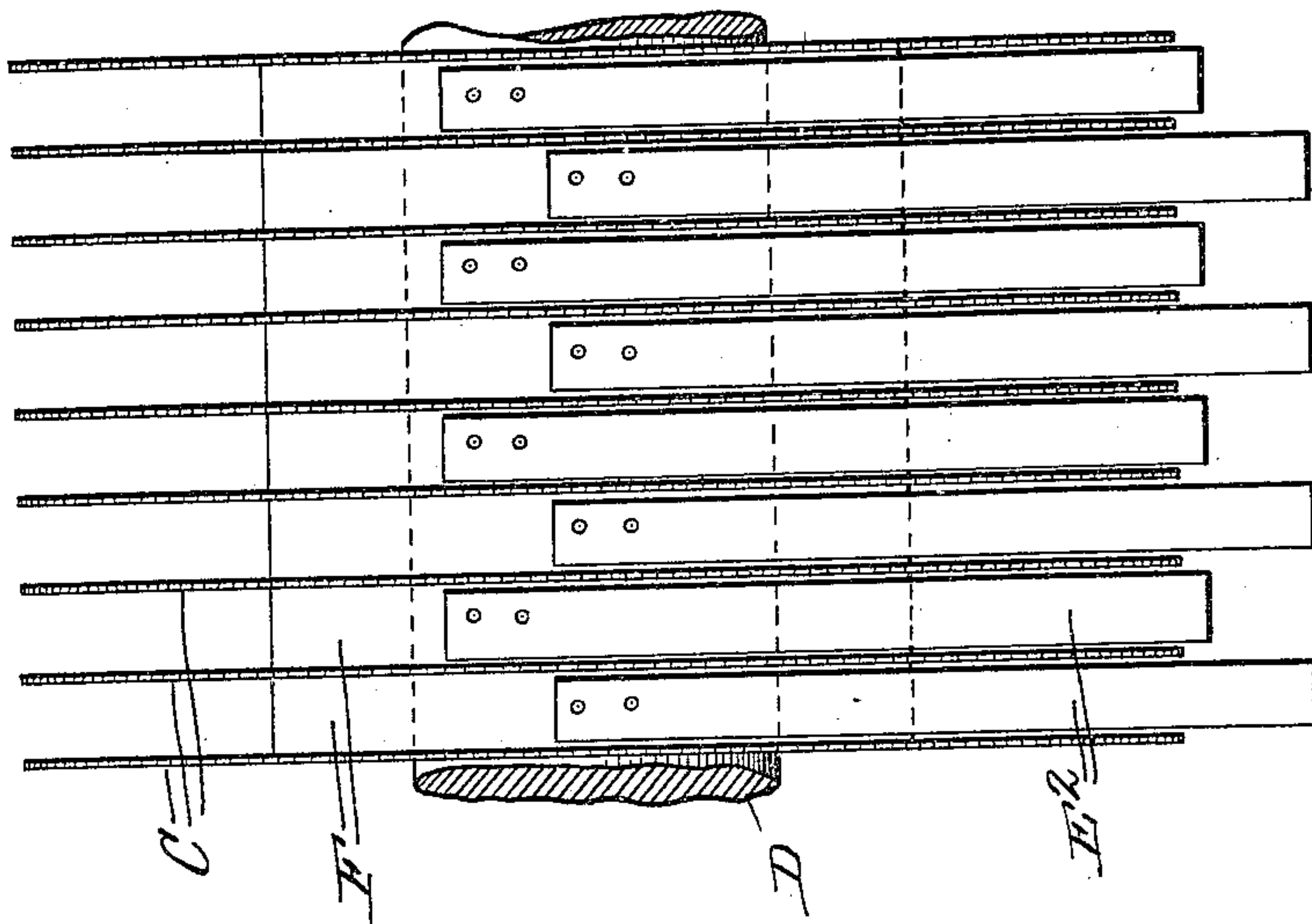


Fig. 3.

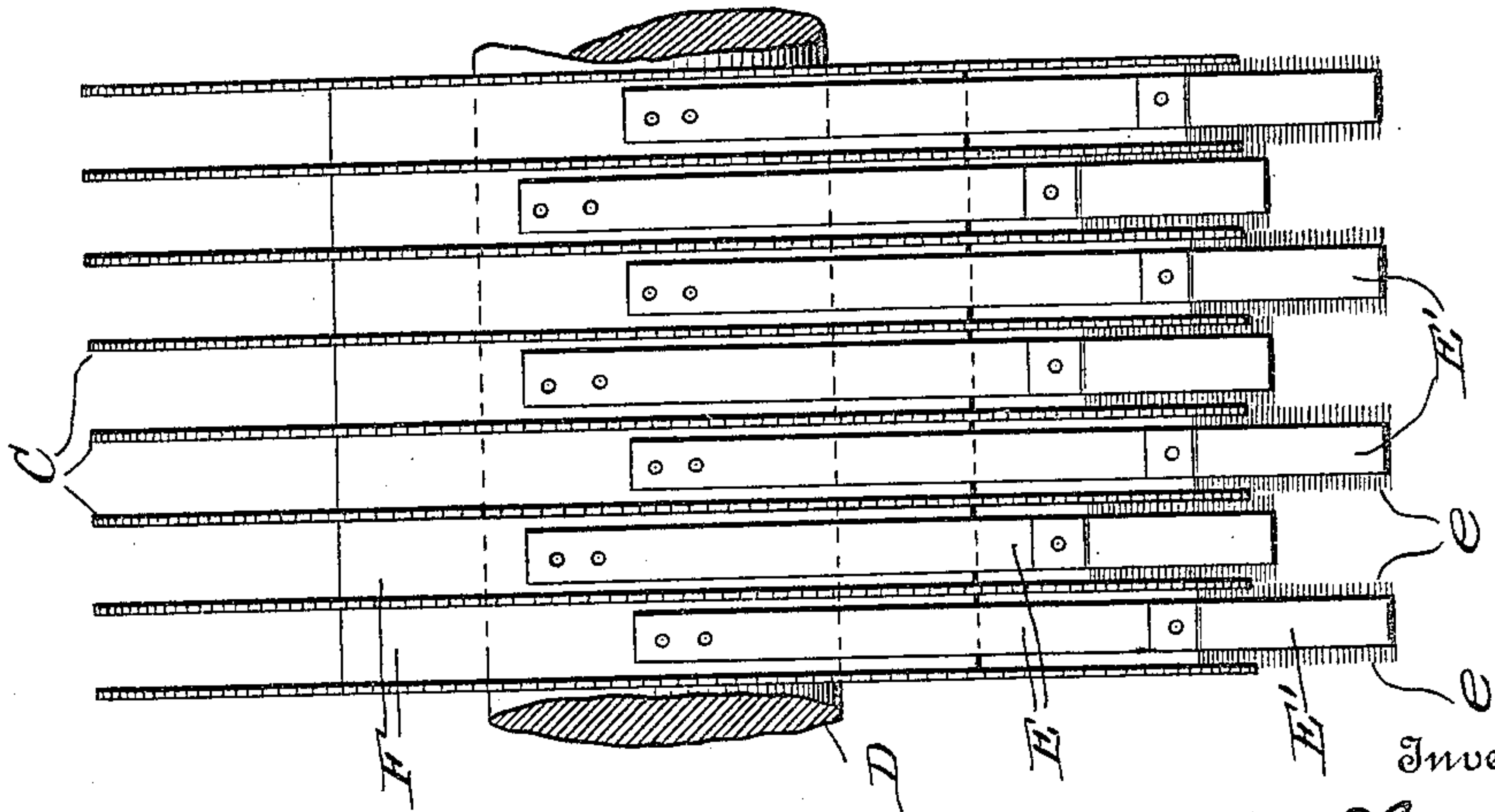


Fig. 2.

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UNITED STATES PATENT OFFICE.

HARRY W. LIGON, OF ATLANTA, GEORGIA.

COTTON-GINNING MACHINE.

952,825.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed July 15, 1909. Serial No. 507,743.

To all whom it may concern:

Be it known that I, HARRY W. LIGON, of Atlanta, county of Fulton, and State of Georgia, have invented certain new and useful Improvements in Cotton-Ginning Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to cotton ginning machinery or gins and is applicable to any of the ordinary types of gin now in common use such, for instance, as the plain gin, huller gin, linter gin, etc.

The object of the invention is to provide a means whereby the fiber or lint may be effectually cleared or discharged from the saws without the employment of the usual rotary brush.

In accordance with the present invention, the rotary brush heretofore employed may be entirely dispensed with and the space ordinarily occupied by it utilized for the entrance end of the lint conducting flues. The lint or fiber is discharged from the saws by clearing devices which are mounted upon and rotate in unison with the saw cylinder itself, such clearing devices in the simplest embodiment of the invention conveniently taking the form of a plurality of outwardly and forwardly swinging members or clearers which, at their inner ends, are connected with the cylinder between the saws, such clearing devices being preferably left free to swing forwardly and outwardly on the rear side of the cylinder. Provision is made whereby they are retracted or caused to move back within the peripheral line of the saws on the forward side of the cylinder or on that side where the lint or fiber is taken up by the teeth of the saws.

Referring to the accompanying drawings—Figure 1 is a vertical section through an ordinary plain gin in which the present invention has been embodied in one of its most simple and convenient forms, those portions of the gin having no immediate bearing upon the present invention being omitted. Fig. 2 is an elevation of a section of the saw cylinder showing some of the clearing devices or clearers in position. Fig. 3 is a view corresponding to Fig. 2 with clearing devices of a somewhat different character. Fig. 4 is an elevation of one of

the fixed guides preferably employed for retracting the clearing devices.

Like letters of reference indicate the same parts in all the figures.

The gin shown in Fig. 1 is, in its general characteristics, of conventional form and embodies the usual roll box A across the lower portion of which the usual gin ribs B are arranged and supported by the rib rails B' B². The saw cylinder is in its general characteristics also of usual construction, that is to say, it embodies a number of saws C mounted on a shaft D, and separated by spacers E'' whereby each saw is adapted to travel between approximate ribs and project partly into the roll box for engagement with the lint, cotton or fiber therein.

In accordance with the present invention, the usual brush for clearing or discharging the lint or fiber from the saw teeth in rear of the ribs may be entirely dispensed with and the lint or fiber is discharged by clearing devices mounted on and rotating with the saw cylinder between adjacent saws. These clearing devices are preferably yielding and resilient in character being conveniently in the form of strips E which, at their inner ends, are attached to a band F surrounding or forming the periphery of the spacer E between each adjacent pair of saws. The strips or clearers E may be made of any suitable material such as whale bone, cloth, rawhide, spring metal, hair, or any relatively light body which is yielding in nature or which may be yieldingly or flexibly connected with the saw cylinder and extend between the saws in such position as to be capable of swinging outwardly and forwardly in a direction which will discharge or clear the fiber from the teeth of the saws. As shown, these clearers are of resilient material attached at their inner ends to the band F and in Figs. 1 and 2 they are provided near their outer ends with heads E' having laterally projecting brush faces e (Fig. 2) which will sweep forwardly and outwardly against or in proximity to the sides of the saws. Obviously, the employment of heads or brush faces, while preferable, is not essential, and in Fig. 3 the clearers are shown in the form of simple strips E² which are of sufficient width to substantially bridge the spaces between adjacent saws and in each instance the strips are of sufficient length to extend beyond the peripheries of the saws when extended or

swung forwardly and outwardly under the influence of centrifugal force or the inherent resiliency of the clearers themselves.

The forward and outward movement results from attaching the clearers at their inner ends to the saw cylinder at points between the axis of the cylinder and peripheries of the saw and allowing them to extend backwardly or reversely with relation to the direction in which the cylinder rotates. A sufficient number of the clearers are employed between each pair of adjacent saws to overlap each other and insure the movement of a clearer past each and all of the teeth in the saws when the clearers are permitted to swing forwardly and outwardly and the direction of their movement at the points where they sweep past the saw teeth is preferably such that the fiber will be most readily cleared or discharged, *i. e.*, in a direction more or less parallel with the faces of the teeth.

Various means will at once suggest themselves for retracting the clearers and allowing or causing them to move outwardly at the proper point during the rotation of the cylinder but, as a convenient means, preferably employed where the clearers are free to move outwardly, a fixed guide is employed extending around the front of the cylinder between each pair of adjacent saws and in rear of the rib for effecting the withdrawal of each clearer. The guides are indicated by the reference letter G and in the embodiment illustrated, the guides are supported at their upper and lower ends by the rib rails B' B². The guiding faces of the guides are preferably in the form of a volute, as indicated at g, in order that the clearers may be retracted gradually and without undue shock or wear. The guide faces will, of course, mechanically retract the clearers by contact therewith but the air pressure due to the contracting formation of the passage-way for the clearers will materially assist in inaugurating the inward movement of the clearers, thus overcoming to a degree the tendency of the clearers to strike the guideway with a sharp blow. The guideways are extended around the upper side of the cylinder to a point where, when the clearers are released, they will fly outwardly and directly discharge the cotton or fiber into the lint flue which is properly located to receive the same. The movement of the clearers will create a considerable air pressure usually sufficient for carrying the lint or fiber to the desired point of discharge or to the condenser itself and, owing to the fact that the air pressure created is practically constant and uniform, gins embodying the present invention may be worked in batteries all communicating with a single lint flue.

In Fig. 1 of the accompanying drawings,

the mouth of the lint flue is indicated diagrammatically at H and the dotted lines H' and the circle and curved lines H² H³ indicate the position and diameters of lint flues which it is practical to use in connection with the present invention.

It is obvious that by dispensing with the usual rotary brush the space ordinarily occupied by such brush may be utilized for the flues and, consequently, the size of the ginning apparatus may be materially reduced.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In ginning machinery, a rotary saw cylinder and a plurality of independent clearers between proximate saws for discharging the fiber from the saws, said clearers being mounted on and rotating in unison with the saw cylinder.

2. In ginning machinery, a rotary saw cylinder and a plurality of independent clearers between proximate saws for discharging the fiber from the saws, said clearers being mounted on the cylinder between the saws and movable outwardly past the peripheries of the saws.

3. In ginning machinery, a rotary saw cylinder and a plurality of independent clearers between proximate saws for discharging the fiber from the saws, said clearers being connected at one end only to the cylinder between the saws, and means for retaining the clearers within the peripheral line of the saws during a portion of the revolution of the cylinder.

4. In ginning machinery, a rotary saw cylinder and a plurality of independent clearers between proximate saws for discharging the fiber from the saws, said clearers being carried by the cylinder and mounted to swing outwardly from points removed from the axis of the cylinder.

5. In ginning machinery, a rotary saw cylinder, and a plurality of clearers for discharging the fiber from the saws secured to the cylinder between proximate saws at points intermediate the axis of the cylinder and peripheries of the saws.

6. In ginning machinery, a rotary saw cylinder and a plurality of independent clearers each secured at one end only to the cylinder and at the opposite end movable forwardly and outwardly to discharge the fiber from the saws, there being a plurality of clearers between proximate saws each with its free end in position to overlap an adjacent clearer.

7. In ginning machinery, a rotary saw cylinder, a plurality of overlapping clearers secured to the cylinder between adjacent saws and movable forwardly and outwardly to clear the saws of fiber, and guides extending between the saws for retracting the

clearers throughout a portion of the circumference of the cylinder.

5 8. In ginning machinery, a rotary saw cylinder, overlapping clearers secured to the cylinder between the saws and free to swing forwardly and outwardly and fixed guides extending inwardly between the saws for returning the clearers to a position within the peripheries of the saws during a portion
10 of the revolution of the cylinder.

9. In ginning machinery, a rotary saw cylinder, yielding clearers secured at their inner ends to the cylinder between the saws and free to swing outwardly and forwardly,
15 and fixed guides extending inwardly between adjacent saws on one side of the cylinder for retracting the clearers.

10. In ginning machinery, a rotary saw cylinder and a plurality of yielding clearers
20 secured at their inner ends to the cylinder between adjacent saws and fixed guides extending between the saws on one side of the cylinder for retracting the clearers.

11. In ginning machinery, a rotary saw cylinder embodying parallel circular saws,
25 and elastic yielding clearers secured to the cylinder between proximate saws, said clearers having operative side faces free to swing outwardly and forwardly, whereby
30 each clearer cleans the proximate faces of two adjacent saws.

12. In ginning machinery, a rotary saw cylinder embodying parallel circular saws and spacers between the saws, and clearers
35 secured at their inner ends adjacent the peripheries of the spacers and each free to swing outwardly and forwardly past the proximate faces of adjacent saws.

13. In ginning machinery, a rotary saw cylinder embodying parallel circular saws
40 and spacers between the saws, clearers secured at their inner ends in proximity to

the peripheries of the spacers and free to swing outwardly and forwardly past the proximate faces of adjacent saws, and fixed
45 guides extending between the saws on one side of the cylinder for retracting the clearers.

14. In a gin, the combination with the ribs and saw cylinder embodying circular
50 saws projecting between the ribs, of independent yielding clearers secured to the cylinder at their inner ends between the saws and in the planes of the ribs, for discharging the fiber from the saws. 55

15. In a gin, the combination with the ribs and saw cylinder embodying circular saws projecting between the ribs, of independent clearers for discharging the fiber
60 from the saws, movably mounted on the cylinder between the saws and in the planes of the ribs and having heads at their outer ends.

16. In a gin, the combination with the ribs and saw cylinder embodying circular
65 saws projecting between the ribs, of independent clearers movably mounted on the cylinder between the saws and having brush faces on opposite edges and movable outwardly in the planes of the ribs for dis-
70 charging the fiber from the saws.

17. In a gin, the combination with the ribs and saw cylinder embodying circular saws projecting between the ribs, of clearers
75 movably mounted on the cylinder between the saws and free to swing outwardly for discharging the fiber from the saws and guides in rear of the ribs having volute guiding surfaces for retracting the clearers.

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